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TABLE OF CONTENTS

Residency Training Policy	2
Antibiotics for Prevention of Rheumatic Fever	3
Familial Intestinal Polyposis	5
Congenital Afibrinogenemia	7
Triopathy of Diabetes	10
Chemical Control of Cancer	11
Spontaneous Subarachnoid Hemorrhage	13
Smooth Muscle Tumors of the Stomach	15
Intramural Hematoma of the Duodenum	16
Treatment of Enuresis in Female Children	17
Methanol Poisoning	20
Lichen Planus	21
American College of Chest Physicians	23
"Just One Letter"	24
Training Course in Special Weapons, Isotopes, and Military Medicine ..	25
From the Note Book	25
Board Certifications	29
Correction	29
NavMed-F Card on Each Patient (BuMed Notice 6310)	30
Change Orders to NOy Contracts (BuMed Inst. 7302.3)	30
Completion of Part IV, Hospital Staffing Report (BuMed Notice 6320) ..	30
Completion of Part II, Staffing Report (BuMed Notice 6320)	31
Special Treatment Hospitals (BuMed Inst. 6320.5D)	31
Pest Control (BuMed Inst. 6250.4)	32

PREVENTIVE MEDICINE SECTION

Traffic Accident Reduction	32	Supplied Sandwiches	37
Film - "Drive Right"	36	Enteric Carriers	38
Dispensing Bulk Milk	37	Chlorine Tests on Water	38
Errors in Use of Insecticides	39		

Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Notice

Due to the critical shortage of medical officers, the Chief, Bureau of Medicine and Surgery, has recommended, and the Chief of Naval Personnel has concurred, that Reserve medical officers now on active duty who desire to submit requests for extension of their active duty for a period of three months or more will be given favorable consideration.

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Residency Training Policy for Reserve Medical Officers on Active Duty

The response by Reserve medical officers to the Residency Training Program for Reserve officers, as provided in BuMed Instruction 1520.7, has been most gratifying. There are several vacancies remaining in the following residency programs: Pathology, Orthopedic Surgery, Obstetrics and Gynecology, Pediatrics, and Urology. A very limited number of billets are still available in Otolaryngology, Anesthesiology, and Ophthalmology. While applications for training in the above specialties should be for one year at a time, it is expected that in most instances officers who participate in this program will be permitted to complete their required training without interruption. Every effort will be made to accomplish this insofar as service needs will permit.

Reserve medical officers on active or inactive duty, who have completed their obligated active duty imposed by the Universal Military Training and Service Act, as amended, are eligible for participation in this program. Reserve officers on inactive duty must request return to active duty in order to be assigned to such training.

Eligible and interested medical officers should make applications to the Bureau of Medicine and Surgery, via the chain of command. Letters of application should contain an agreement to volunteer for the period of residency training requested and to remain on active duty in the Navy for a period of one year following completion of training, for each year of training received.

From time to time the list of medical specialties in which shortages exist will be published in the Medical News Letter. (ProfDiv, BuMed)

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Antibiotics for Prevention of Rheumatic Fever

The intelligent and judicious employment of chemotherapeutic agents should make rheumatic fever prophylaxis feasible and practical. The efficiency of such prophylaxis depends upon an intimate knowledge of the relationship of the streptococcus to the natural history of rheumatic fever and upon a thorough understanding of the principles of the chemotherapy and chemoprophylaxis of streptococcal infections. In this article some of these principles are reviewed and several methods are evaluated which have been used successfully to reduce the incidence and morbidity of the disease.

Two effective approaches exist for the prevention of rheumatic fever by the use of antibiotics. The first is protection of the highly susceptible rheumatic subject from repeated attacks of the disease by maintaining continuous chemoprophylaxis against new streptococcal infections. The second is prompt and adequate treatment of streptococcal pharyngitis in the general population to reduce the incidence of first attacks of rheumatic fever. Each approach is based upon different considerations and is discussed separately.

Despite the rudimentary state of knowledge of the pathogenesis of rheumatic fever, some general principles have been formulated for the prevention of recurrences. The attack rate of rheumatic fever in the general population following streptococcal pharyngitis has been estimated to be about 3%. In patients who have suffered a recent bout of rheumatic fever, this attack rate has been reported to be as high as 50%. From serologic and bacteriologic studies, it is known that subclinical streptococcal infections are frequent and can initiate new attacks of rheumatic fever. It is generally agreed, therefore, that the highly susceptible rheumatic subject must be continuously protected against streptococcal exposure and that for such patients it is unsafe to await clinical signs of upper respiratory infections before initiating antibiotic prophylaxis.

The decision as to how long prophylaxis must be maintained is a matter to be determined by individual circumstances. Certainly it would

seem wise to protect the rheumatic fever patient for at least the five-year period following a rheumatic attack during which the recurrence rate is known to be highest. This period should be extended for the young rheumatic subject. It would be unwise to discontinue protection if after five years the patient is still of elementary or secondary school age--the period of highest incidence of streptococcal infections. Similarly, prophylaxis may have to be maintained longer if the rheumatic subject attains the age of eighteen but is exposed to an environment in which the risk of streptococcal exposure is high. This is particularly true when rheumatic heart disease is present.

Limited data are available upon which to base recommendations for the adult rheumatic cardiac. The frequency of streptococcal infection and rheumatic recurrences in this age group is not well documented. It is known, however, that rheumatic recurrences may occur at any age and it is well to weigh the possible disastrous consequences of a new attack of rheumatic fever in a patient with severe rheumatic heart disease against the expense and inconvenience of maintaining such patients upon antibiotics continuously. It has been recommended that all patients with rheumatic heart disease on the wards of general hospitals receive chemoprophylaxis against streptococcal exposure. Extension of such protection beyond the hospital environment appears reasonable.

It is not yet known whether the attack rate of rheumatic fever following streptococcal infection will be diminished after continuous prophylaxis is maintained for several years. Until more information becomes available as to whether susceptibility to rheumatic attacks "wears off" with periods of freedom from streptococcal infection, it is difficult to limit the duration of continuous prophylaxis arbitrarily.

The selection of patients for continuous chemoprophylaxis should logically include all who have had a recent well defined attack of rheumatic fever. This selection cannot be made solely on the basis of age, severity of the attack, or limitation of the overt disease process to the joints or central nervous system. The disease is recurrent in the older as well as the younger age group. An initial mild attack may be followed by a second bout of severe crippling, even fatal, carditis. A rheumatic career beginning with Sydenham's chorea may end with advanced rheumatic heart disease.

The decision to start prophylaxis for a period of years is a serious one and involves the possibility of causing psychic trauma, and even invalidism, unnecessarily in individuals who are not really rheumatic. At the risk of failing to recognize some rheumatic subjects, it is best to reserve prophylaxis for those whose diagnosis is firmly established. Before instituting small prophylactic doses of antibiotic to prevent new streptococcal infection, it has been considered advisable to administer a course of penicillin therapy adequate to eradicate the streptococcal

carrier state as soon as the diagnosis of rheumatic fever has been made. The absence of clinical signs of pharyngitis and the failure to culture group A streptococci from the nose or throat may not always exclude the presence of these organisms deeper in the tissues, particularly in the presence of enlarged tonsils.

The peak incidence of rheumatic fever in the United States usually occurs in the spring; the lowest point in the late fall. Sporadic and even epidemic streptococcal infection can occur at any season, however, so that prophylaxis should be maintained throughout the year.

It is apparent that the major limitation of the chemotherapeutic approach to the prevention of rheumatic fever is the difficulty of clinical identification of streptococcal sore throat. To avoid the promiscuous and unnecessary administration of penicillin to patients with viral and non-streptococcal upper respiratory infections, the clinical criteria for the diagnosis of streptococcal pharyngitis should be more widely recognized. Simple coryza, cough, hoarseness and tracheitis are rarely due to streptococci. The syndrome of sudden onset of fever, sore throat, "beefy" redness of the pharynx, and pharyngeal exudate suggest the diagnosis. Cervical lymphadenitis and the presence of leukocytosis add further evidence for it. In a recent large series of patients studied, a proper diagnosis was made on clinical criteria alone with 70% accuracy.

Because the preceding streptococcal infection may be unapparent in at least 38% of patients in whom rheumatic fever develops, it is obvious that the chemotherapeutic approach will prevent, at best, little more than half of the total cases. The proper diagnosis, treatment, and control of streptococcal infections may reduce their prevalence and this could be reflected in a further decline in the incidence of rheumatic fever.

The use of antibiotics in the prophylaxis of rheumatic fever is far from an ideal solution of the problem. Pending more knowledge and a better approach, however, the incidence and morbidity of the disease can be reduced significantly by appreciation on the part of physicians and the general public of the importance of early diagnosis and proper therapy of streptococcal disease and upon diligent protection of rheumatic subjects from streptococcal infection. (Am. J. Med., Dec., 1954; G. H. Stollerman, M.D., New York University College of Medicine, New York City)

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Familial Intestinal Polyposis

Familial intestinal polyposis is a rare hereditary disease characterized by the growth of many adenomatous polyps from the rectal and colonic mucosa. The polyposis generally develops in adolescence or early adult life, though more rarely it may occur in the first decade or after middle

age. The disease appears to be inherited as a heterozygous, dominant Mendelian characteristic; thus, only an affected parent, either male or female, can transmit the disease, and then only to half the children. Colonic polyposis is probably the most clearly defined precancerous disease known to medical practice today.

Familial polyposis of the colon should be differentiated from congenital polyposis affecting the whole gastrointestinal tract, a disease which is accompanied by skin pigmentation. The obvious skin marking and the early obstructive symptoms from the benign polyps of the small intestine soon bring such patients for medical advice, whereas the symptoms of polyposis of the large bowel may be relatively trivial until malignancy supervenes. Isolated polyps in the rectum are not uncommon and should not be confused with colonic polyposis, in which the polyps are much more numerous and widespread. If an adult is seen to have a few polyps only on sigmoidoscopic and x-ray examination, the case should not immediately be diagnosed as one of colonic polyposis.

How the disease originates in a family is not understood. This article discusses the various problems that arise during the investigation of families affected by familial polyposis. Two families in particular are reported. Fifty-five polyposis families were investigated and the family pedigrees prepared. The families include 1036 members, using the word "member" to describe polyposis patients, their brothers and sisters, and the direct descendants of these persons. Of these 1036 members, no fewer than 208 are known to have suffered from polyposis, and 150 have already developed intestinal cancer.

The growth of the intestinal polyps is generally far advanced before a patient seeks medical attention because of his symptoms. The incidence of cancer in these persons is distressingly high; in a series of 45 patients undergoing colectomy, C. W. Mayo found that only 6 were free from cancer and that, in many cases, there was more than one focus of malignant disease. In nearly all cases, a careful histological search throughout the colon and rectum will show areas of great epithelial hyperplasia, which, although there is no invasion or gross irregularity of cell architecture, can be but a short step from frank carcinoma.

Diarrhea is the earliest symptom of the disease and at the outset may be very slight, amounting to little more than a soft consistency of the feces. The insidious progression of this symptom is not noticed by the patient who comes to think that it is normal for him to have more frequent bowel actions than his fellows. Late in the disease, the diarrhea increases, interfering with the patient's daily life, while hemorrhage and mucous discharge from the polyps give rise to symptoms which cannot be disregarded.

The clearing of the rectal polyps by fulguration is generally best done before colectomy, as afterward the ileal content tends to obscure the rectal mucosa. The anastomosis between the ileum and the remaining

large bowel must be within reach of a sigmoidoscope; the higher the anastomosis, the easier it is to perform and the more normal the postoperative bowel function is likely to be. These advantages of the ileosigmoid and high ileorectal anastomosis over a lower ileorectal anastomosis are offset by the larger area of mucosa left in situ from which new tumors may arise and the greater difficulty that their fulguration will present. In more severe cases the rectal polyps may be so numerous that fulguration of all of them will leave the rectum so scarred or stenosed that its function will be impaired. In these cases the only alternative to excision of the rectum and establishment of a terminal ileostomy is to remove the whole rectal mucosa, leaving the muscular wall of the rectum and passing the terminal ileum through this muscular tube to anastomose it to the anal mucosa. This operation has the advantage of removing all the tumor-bearing mucosa, but it has not yet been fully established that this anal ileostomy is controlled by the preserved sphincters adequately enough for the patient to lead a normal life.

In a disease of this type, one would expect that the members of the affected family would be very willing to take medical advice and cooperate in being examined, as the majority of them must be aware that, in ignoring this advice, they are running the risk of developing a lethal disease at a relatively early age. Unfortunately, this is not always the case, and it is often more difficult to persuade members to be examined than to trace them after they have lost touch with their family. The two main reasons for this are the fatalistic attitude which the family members tend to adopt toward the disease, sometimes amounting to a denial that the disease exists or that it can affect them personally, and their fear of treatment which they associate with colostomies and failure to cure their older relatives.

Ideally, all members of the family should be traced, and those who may possibly inherit the disease should be examined at intervals until they are past the age when the disease is likely to develop. The wholehearted confidence and good will of the family is needed to achieve this ideal; without it, the good intentions of the enthusiastic doctor are likely to be thwarted by obstructive tactics, if not by open opposition. (Arch. Surg., Dec., 1954; P. H. Brasher, M. B., Saskatoon, Sask., Canada)

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Congenital Afibrinogenemia

The complete congenital absence of fibrinogen is apparently one of the most unusual anomalies; only 21 cases have been reported to date. In this presentation the 22nd patient is discussed and a brief review appended. Aside from their rarity, these patients present findings which throw light

on other, commoner problems and are examples of conditions which are impossible to produce experimentally at present.

The authors have been able to locate 18 reports of 21 patients with congenital lack of fibrinogen. The outstanding abnormality common to this group, and present in no other disorder that they were aware of, is complete incoagulability of the blood from birth. Absence of fibrinogen is a feature of all except the patient of Castex and co-workers in which it is said to be present in trace amounts. Fifteen of the 22 patients are males. Cousin marriages appeared in the kinship of 7 of the patients, occurring in parents or grandparents. Seven had siblings with bleeding disorders, although only the cases of Diamond and co-workers were proved to be of afibrinogenemia. In four reports, hypofibrinogenemia existed in one or more relatives of the patients. In others, where determined, parents and siblings had normal fibrinogen levels. Variable results were obtained from estimations of capillary fragility. Bleeding phenomena have been noted from an early age, most of them from birth, and bleeding was the cause of death in 5 of the 8 who were dead at the time of the last report. It is surprising to note that these patients have less bleeding difficulty on the average than many patients with hemophilia, despite the complete incoagulability of their blood. Bleeding has been associated with the eruption and shedding of teeth, trauma, diphtheria, tuberculosis, and surgery. There has been a variable association with low platelet levels, often unassociated with bleeding. Despite the lack of a fibrin net, healing of wounds has not been retarded. The bleeding time has been widely variable in these patients. The sedimentation rate of the blood has been low in the 10 cases in which it was mentioned. The prognosis is difficult to give because of the small number of patients reported, but seems to be poor on the basis of present data, with 8 of the 21 dead, and the oldest reported to be alive at 20 years of age. However, it is to be expected that the survival rate will improve as transfusion techniques have improved. It is likely, as mentioned by Henderson and co-workers, that many others with this condition have died from umbilical hemorrhage at the time of birth without diagnosis. Pulmonary tuberculosis occurred in 2 patients. Despite the lack of fibrinogen, Prentice's patient had fibrous pleural adhesions but no fibrin in the tuberculous granulomas. The patient of Castex and co-workers had a tuberculous infection of the "primary" type and was given plasma in the hope that the fibrinogen therein would facilitate arrest of the process. In the short period the patient was observed up to the time of their report, no effect could be demonstrated.

The small number of cases reported makes sweeping conclusions all but impossible. The onset immediately after birth might be expected in a congenital defect and is analogous to hemophilia. There are insufficient cases to indicate which sex predominates, but the 7 girls make it a non-sex-linked recessive. Present evidence does not indicate the existence

of a less severe degree of the defect in other members of the families. Several racial strains are implicated--Northern European and Semitic. Associated developmental anomalies are not common, only 1 patient in this group having one (harelip and cleft palate).

One of the most interesting facets of the disorder is the apparent lower degree of morbidity, though not of mortality, when the disorder is compared with hemophilia, despite the complete incoagulability of the blood--a finding never observed in hemophilia.

The question of absolute absence of fibrinogen is unsettled. Various means have been used to establish the levels: salting out with sodium chloride and ammonium sulfate, heating to 56 C., microscopic observation and serological tests, electrophoresis, and addition of concentrated thrombin solutions.

Present facts offer no pathogenesis for the disorder, except for the evidence that it is sometimes apparently genetically determined. No functional or morphological lesion other than the main defect is apparent with present methods.

The differential diagnosis is reasonably straightforward. When the absence of clotting is determined, hemophilia is ruled out. This may be rapidly accomplished by addition of thrombin and should prove helpful in newborn males, in whom it is a consideration of importance. If this simple procedure is carried out, it is likely that many more instances of this disorder will be discovered. Other unusual disturbances of blood coagulation are similarly ruled out by the absence of clotting upon addition of potent thrombin solution. Hitherto not touched upon, is one of the most important conditions which must be differentiated--the acquired form of afibrinogenemia, and the congenital and acquired forms of hypofibrinogenemia. The few reported instances of congenital hypofibrinogenemia have not been associated with incoagulability of the blood. The acquired forms of complete and partial absence of the protein may be suspected by the nature of their accompanying disease and an onset after the neonatal period.

Treatment is the same as that of hemophilia. Local control of external bleeding, not associated with shock or anemia, may be sufficient. If inaccessible bleeding is present, unassociated with anemia, fresh plasma or thawed plasma (frozen while fresh) may be used. Fibrinogen solutions could be used but are not necessary. If shock or anemia is also present with internal or external bleeding, fresh whole blood is indicated. The cessation of bleeding is prompt, and the effect persists for a variable period--at least 4 or 5 days. (Am. J. Dis. Child., Dec., 1954; R. W. Prichard, M.D., and R. L. Vann, M.D., Bowman Gray School of Medicine, Wake Forest College, Winston-Salem, N.C.)

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Triopathy of Diabetes

The term "triopathy" has been applied to diabetic patients who usually have shown, first, clinical evidence of neuropathy; then, diabetic retinitis, and finally, the nephropathy of diabetes.

In the series discussed, the term "diabetic neuropathy" has been used to include those patients with a history or findings of severe neuritis (neuronitis), that is, in whom severe paresthesias, nocturnal pain, objective evidences of loss of sensation, of motor function or of reflexes, or disturbances in the autonomic nervous system, have been persistent after initial or temporary diabetic control has been attained.

The retinopathy referred to means the presence, not merely of capillary microaneurysms of diabetes, but of hemorrhages and characteristic diabetic exudates. The hard, waxy exudates, with changes in caliber and thickened walls of the venules, are features. The more serious retinitis proliferans is characterized by the new formation of fibrous tissue, especially at or near the optic disc, often as organization of areas of hemorrhage. Separation of the retina and repeated hemorrhage into the vitreous occur frequently.

The diabetic nephropathy is frequently ushered in by albuminuria or edema. Within a year or more, the edema may become permanent; hypertension develops, and retinal lesions, present either before or subsequent to the edema, advance. During the first few years of this stage, a nephrotic syndrome with elevated plasma cholesterol values, marked edema, and marked albuminuria, may appear benign, but sooner or later a stage of nitrogen retention is ushered in and uremia results.

The discussion of the pathogenesis of the malignant triopathy begins with the background of the diabetes itself. Diabetes mellitus is hereditary in the sense that the tendency to the development of diabetes is inherited and may be manifested in an early period in life or may remain latent until the stress of excessive overweight, infection, or local damage, as in hemochromatosis, brings it forth. Diabetes mellitus is believed to be inherited as a recessive gene. The hypothesis that such an inheritance carries with it a special vulnerability of the central nervous system and the vascular system, is speculative but is gaining support from many studies. Although the hereditary genes may be altered, a second factor may well be of equal importance, namely, the influence of the maternal environment in utero. In recent years, the influence of this period in the life of the embryo has been more and more emphasized since the frequency of unusually large babies and the later development of maternal diabetes has been studied.

Diagnosis and treatment of diabetes in its early stages with the early use of insulin is of basic importance. Once the sequelae have made their appearance, then treatment will yield results which vary with the stage of

the condition. If the neuropathy is recognized early, the syndrome of pain in the legs, hyperesthesia, muscular weakness, and atrophy, can be brought to an end at periods which may vary from a few weeks to one or more years. This treatment consists basically of bringing the diabetes under control with diet and insulin. The use of a diet, containing from 90 to 120 gm. of protein and roughly 1800 to 2000 calories, is started. One difficulty is that, during the acute phase of a severe neuropathy the appetite is seriously disturbed. Treatment of the Charcot foot is notoriously unsatisfactory. Treatment of nocturnal diarrhea, with incontinence, is usually successful with the use of liver injections and adequate control. Diarrhea, however, may recur. Spontaneous remissions do occur. Treatment of retinitis proliferans is unsatisfactory. However, a follow-up of a series of some 450 cases of retinitis proliferans showed a considerable group of patients, notably those 40 years and over, in whom retinitis proliferans remained stationary for as long as 5 to 15 years before serious loss of vision occurred. In contrast to this group, however, it must be admitted that, in the majority of patients with retinitis proliferans, the condition progresses to serious loss of vision, nearly complete blindness, and in a few cases, loss of one or both eyes from hemorrhagic glaucoma.

Treatment of nephropathy presents a somewhat similar variable picture. During the nephrotic state, when edema and elevation of the plasma lipids, including cholesterol and lipoproteins, are present without nitrogen retention, treatment by diuretics, rest in bed, salt restriction, and sometimes, the cautious use of plasma transfusions will relieve the symptoms. Once, however, the state of nitrogen retention has been reached, with elevation of blood pressure and retinitis, treatment to prevent further progression is symptomatic only. (Arch. Int. Med., Dec., 1954; H. F. Root, M.D., Boston, W. H. Pote Jr., M.D., Los Angeles, and H. Frehner, M.D., Herisau, Switzerland)

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Chemical Control of Cancer

Satisfactory therapy for most patients with cancer has not been achieved. The advances in surgery which permit more extensive operations and the increased control of tumors, which can be exerted by the newer techniques and more powerful equipment of modern radiotherapy, still fall desperately short of solving the problem. Most physicians are legitimately skeptical that further advances in these two disciplines can successfully cope with the challenge.

In 1953, approximately 224,000 people died from cancer in the United States. Of all patients with malignant disease, it is probable that only one-fourth to one-third are cured today. Full use of present knowledge and

better methods for earlier diagnosis would surely save more lives. There remain, however, millions of persons who will die from cancer in the foreseeable future despite the most informed use of surgical or radiotherapeutic procedures, and regardless of the most meticulous attention to diagnostic techniques.

Two investigative approaches could be extended with reasonable hope of finding useful clinical applications. The first approach--studies of carcinogenesis--may elucidate avoidable environmental or endogenous factors which, though now unknown, may be responsible for many cancer deaths. Recognition and avoidance of certain carcinogenic materials in the environment in the past have diminished their hazard.

The positive identification of carcinogens is difficult. This difficulty may better be appreciated if it is recalled that the identity of the cancerous process in all its different types and loci is far from certain; there may be as many endogenous carcinogens as there are cancers, and perhaps multiple conditions must be satisfied for malignant growth to occur. Despite the enormity of the task, the possibility is real that etiological and pathogenic factors can be identified and can then be avoided or counteracted. Research in carcinogenesis is deserving of the most intensive studies.

Chemotherapy of cancer is the second approach which has the potentiality of effecting a major decrease in cancer mortality. This potentiality has not been realized in man; no compound in use or under study at present, offers significant promise of producing cure of human cancer. That there are systemic agents which alter the course of some malignant diseases is a signal achievement worthy of full exploitation. Several drugs in current use offer worthwhile benefit to cancerous patients. Close study of these agents may promote synthesis of drugs possessing cancerocidal rather than cancerostatic action, or discovery of compounds better able to provide remission, if not cures.

Certain characteristics of the several cancer chemotherapeutic drugs permit their classification in different ways. Perhaps the broadest of these classifications describes the mechanism of action as interpreted clinically. Essentially, these drugs may be segregated into (1) those agents which chiefly affect the host's response to, or toleration of, malignant tissue, with a variable degree of effect on the cancer cells, and (2) those agents which exert toxic action directly on cancer tissues with a variable degree of toxicity in normal host cells.

The antineoplastic effect of the drugs to be discussed, although not cell-specific, is not diffuse nor wholly nonspecific. To a great extent the effect is limited to a certain disease or group of diseases. Without major exception, those malignant growths which currently can be favorably modified by drugs, arise from hematopoietic tissues, lymphoid, and reticular tissues, and from some of those organs whose functional status is influenced by endocrine control. For the vast majority of individuals with metastatic

carcinomas, there is no drug of proven value. Many reasons might be advanced for the failure of response of carcinomatous cells. Surely there are chemical differences between carcinomatous and lymphomatous cells. These may involve such factors as the relative degree of variance from normal cells, the rate of growth, and the ability to tolerate or adapt to modified biochemical environment.

The drugs of clinical value with current applicability in cancer chemotherapy are: the nitrogen mustard compounds, mechlorethamine and triethylene melamine; the folic acid antagonists, a-methopterin and aminopterin; the purine analog, 6-mercaptopurine; the hormones, cortisone and testosterone; and the estrogenic substance stilbestrol. Note is made of adrenalectomy and hypophysectomy, and of some chemical agents of limited clinical importance: urethane, myleran, and the ethylene phosphoramides.

The chemical control of cancer has not yet been realized. Within the past 15 years a more profound understanding of cancer has been achieved, and several approaches to its treatment with drugs have been reviewed in this article.

Cancer cells are different from their normal counterparts when viewed under a microscope. Although it is possible that this difference is purely one of rearrangement of the same chemical components within the cell, a vast amount of evidence defines at least quantitative alterations in composition. Functional capacities of malignant and normal cells of homologous tissues may be greatly different. Therapeutic agents which depend on these quantitative differences in the metabolism of cellular constituents afford promise for future progress. A constant search for qualitative differences between neoplastic and normal cells may elucidate obvious pathogenic or perpetuating mechanisms which can be interrupted. Further, it seems within the realm of possibility that pharmacological agents will be found that can effectively counteract the etiological factors which lead to cancer--be they viral, chemical, or physical exposure; idiopathic mutation; or a still unrecognized multitude of cellular insults. (Pub. Health Rep., Dec., 1954; J. F. Holland, M.D., Roswell Park Memorial Inst., Buffalo, N. Y.)

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Spontaneous Subarachnoid Hemorrhage

The treatment of spontaneous subarachnoid hemorrhage is based on reports in the literature of series of cases. Conclusions drawn from these series have been conflicting. A large series of cases, followed in extreme detail and analyzed minutely, would be of great help in resolving many controversies which have risen out of the inconsistencies reported in the

literature. However, until this critical series is presented, it would be of value to consolidate these reports so that as much information as possible may be gained from the available data. This would also point up the factors that should be checked in future studies of this type. In this presentation the major series of spontaneous subarachnoid bleeding have been gathered together and the material presented has been consolidated wherever possible so that a more informative result could be obtained.

The series under discussion has been taken from clinical material in which the diagnosis of spontaneous subarachnoid hemorrhage was made from the syndrome of sudden onset of severe meningeal irritation, with or without focal neurological signs, with bloody or xanthochromic spinal fluid, and without indication of underlying conditions, such as blood dyscrasia, trauma, syphilis, infections, and neoplasms.

Spontaneous subarachnoid hemorrhage is a malignant disease, with the incidence of death a factor of the length of time from the onset of the first hemorrhage. The mortality rate is generally assumed to be between 40% and 50%, a figure which is valid only for the period from one month to one year. Before one month the mortality rate is lower, and after one year, it is greater. This additional dimension is of importance in formulation of the therapeutic program.

The mortality of subarachnoid hemorrhage falls into two categories: cases in which death is due to the first attack, and cases in which the patient succumbs to a subsequent bleeding. A great deal of attention has been given to the group with subsequent bleeding and many of these people can be helped with definitive treatment. The physician is able to offer nothing except palliative and supportive treatment to those who die in the first attack--a group which represents approximately 28% of all cases with subarachnoid hemorrhage.

Only four of the signs found in this condition are reported in the literature in sufficient detail to be analyzed for their prognostic significance. These signs are coma, convulsions, hypertension, and papilledema. The appearance of any of the first three signs singly, the first two to a greater degree than the third, is indicative of a poor prognosis for life. There is no data on the prognosis when a combination of these four signs exists, but this could logically be assumed to be even a more direful portent.

A consideration of the relation of the age of the patient at the onset of the hemorrhage shows that age has no effect on the mortality rate. Approximately 10% of all patients with subarachnoid hemorrhage are maimed to a significant degree, in addition to those patients who die. This fact should also be considered in any thought on the prognosis of subarachnoid hemorrhage.

It is not clear from the literature just how often there is an aneurysm when there is subarachnoid hemorrhage. The best inference is that it occurs in about 50% of the cases. This incidence is an important consideration from the point of view of surgery, for only the cases with demonstrable

aneurysms, arteriovenous malformations, and tumors, can be treated surgically, and not all of these cases can be so treated. Certainly, the presence of such a large group, in which the cause of bleeding is not found, is an academic and clinical problem of great magnitude.

A frequent contraindication to surgery is multiplicity of the aneurysm which is present in about 13% of all patients that have aneurysms. This finding shows that a thorough angiographic study is indicated before surgical treatment is done.

Angiomatous malformation was found to be an uncommon cause of spontaneous subarachnoid bleeding. (Arch. Neurol. & Psychiat., Dec., 1954; S. A. Jacobson, M. D., New York City)

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Smooth Muscle Tumors of the Stomach

Smooth muscle tumors of the stomach, which include leiomyomas and leiomyosarcomas, are not uncommon. The pathogenesis of leiomyomas and leiomyosarcomas of the stomach has been the subject of speculation for many decades. Some theories which have been postulated are: (1) that the tumor is derived from embryonic rests (Cohnheim); (2) that the neoplasm is secondary to an inflammatory process which results in an unchecked proliferation of muscle tissue during the reparative stage; and (3) that the tumor arises from the smooth muscle of the vessels or stomach wall unassociated with inflammation. At present, most authorities favor an origin from the gastric musculature.

The symptomatology of smooth muscle tumors of the stomach is varied and nonspecific. The location of the tumor is of prime importance. If the neoplasm is in the fundus, it may be silent. If the lesion is in the pylorus, it may be associated with intermittent obstruction. When ulceration supervenes, the most frequent complaints include: indigestion, heartburn, epigastric pain, hematemesis, melena, and persistent emesis. The duration of the symptoms is variable, being a matter of days to many years. When heartburn and epigastric distress are the presenting symptoms, there is usually a long period before the diagnosis is entertained.

Most cases fall into one of three patterns: (1) the presenting symptoms are hematemesis and melena, or the result of chronic blood loss; (2) the chief complaint is epigastric or upper abdominal pain or discomfort; and (3) an abdominal mass is noted by either the patient or the physician. The physical findings are usually negative except when there is a palpable mass or when the presenting picture is that of hemorrhage. The only frequent abnormal laboratory finding in these patients is the presence of moderate anemia, usually microcytic, hypochromic in type.

The clinical diagnosis of smooth muscle tumors of the stomach rests primarily with the roentgenologist and gastroscopist.

The treatment of smooth muscle tumors of the stomach is solely surgical resection, because they are radio-resistant. With leiomyomas, the procedures have varied from a submucosal dissection and enucleation of the tumor mass to a complete gastrectomy. In most cases a wedge resection or a subtotal gastrectomy suffices. Doubtful cases should be treated as leiomyosarcomas. For the latter, Marvin and Walters recommend a subtotal or total gastrectomy. (Ann. Surg., Dec., 1954; E. A. Everts, M.D., and H. L. Kazal, M.D., Jefferson Medical College Hospital, Philadelphia)

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Intramural Hematoma of the Duodenum

Intramural hematoma of the intestine is a condition in which, spontaneously or as a result of trauma, a localized collection of blood extravasates into the subserosal and interstitial tissues of the intestine. It has been described on a number of occasions as an unexpected finding at laparotomy or at autopsy, but a correct preoperative diagnosis has not been recorded.

The authors encountered four cases in each of which the duodenum was predominantly affected. The roentgen findings are so distinctive that they are believed to be pathognomonic of intramural hematoma of the duodenum.

Nothing in the symptomatology, physical findings, or laboratory data could be considered diagnostic of intramural hematoma. A history of trauma, however, or of a bleeding tendency, may suggest the possibility of this condition. Pain is usually located in the upper abdomen and may be dull, sharp, or colicky. It is often associated with nausea and vomiting, but heme-mesis and melena are generally absent. Abdominal examination usually reveals upper abdominal tenderness and muscle guarding. Low-grade fever and moderate elevation of the white count with increase in polymorphonuclear leukocytes are often present. The red count and hemoglobin are usually normal.

The roentgen diagnosis of intramural hematoma of the duodenum should offer no difficulty if a gastrointestinal series is performed and if one is familiar with the entity.

Intramural, extramucosal neoplasm is simulated, but the swelling of the mucosa proximal to the main defect, the coil spring appearance, and the length of the abnormal segment, make this diagnosis untenable.

The roentgen appearance may resemble that of an intussuscepting mass, but in intussusception, oral administration of barium should reveal shortening of the duodenum and visualization of the constricted inner lumen. The rare retrograde intussusception can be ruled out by the eccentric

position of the intramural defect, the lack of shortening of the duodenum, and the mucosal changes in the proximal duodenum.

Other conditions, such as pancreatitis, duodenal infarction, and lymphoma or other malignant tumor, should present no serious problem in differential diagnosis if one is familiar with the distinctive roentgen appearance of intramural hematoma.

From the pathological descriptions in the literature, it is probable that similar roentgen changes would also be encountered in intramural hematoma involving other portions of the small intestine. Unfortunately, roentgen descriptions are not available in such cases. In the case of intramural hematoma of the ascending colon, reported by Kratzer and Dixon, an intramural lesion was suggested by the barium enema study. The reproductions, however, show no evidence of the coil spring appearance.

Intramural hematoma of the duodenum has not, heretofore, received consideration in the differential diagnosis of the "acute abdomen." If the possibility of this diagnosis is entertained, and if there is no clinical evidence of bowel perforation or other contraindication, a gastrointestinal series should be performed. The demonstration of an intramural extramucosal mass associated with a coil spring mucosal pattern will establish the diagnosis. (Radiology, Dec., 1954; B. Felson, M.D., and E. J. Levin, M.D., University of Cincinnati College of Medicine, Cincinnati, O.)

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Treatment of Enuresis in Female Children

The etiology and pathogenesis of enuresis are not definitely established as demonstrated by the varied theories offered by the numerous contributors on the subject in the literature. Obviously, the cause is not the same in each child. Enuresis is only a symptom and it is the responsibility of the pediatrician, urologist, and psychiatrist to discover the immediate cause in each case.

The importance of correction of the enuretic problem is obvious. It is essential for the normal mental development of the child and his acceptance in any society that he be continent of urine. It is important for the peace of mind of the parents that their child be normal in this respect. It is even more important that this symptom--rather common in children--not be carried into adult life where the individual with enuresis is even more a social outcast than he was as a child, and in whom failure to correct an organic lesion in the urinary tract may well lead to permanent damage.

Because it is a well recognized fact that enuresis is only a symptom of some underlying disease, it is obvious that, as in all other symptom complexes, the underlying etiology should be first determined in an attempt

to decide whether the projected therapy will be treating the underlying cause. If the enuresis is, as many feel, simply an undesirable habit trait from poor training, then the mechanical methods of awakening the child with nocturnal enuresis should be sufficient. If the enuresis is due to a personality disorder, then psychotherapy is indicated. However, if the enuresis is on the basis of an organic pathologic entity, whether that be inherited, congenital, or acquired, the entity must be found and treated, not only to relieve the child of his immediate problem, but to prevent permanent or longstanding damage to the urinary tract.

The authors do not believe that all enuretic children, or all enuretic female children, necessarily have organic disease. However, they are of the opinion that a rather high incidence of urethral and bladder disease will be found if these children, whose primary admission symptom is enuresis, are completely studied. In the past, the parent and the doctor have been reluctant to submit an enuretic child to a complete urological workup which would perhaps involve pain and an anesthetic. With modern cystoscopic instruments, advances in anesthesia, and improved urographic media, the problems of a complete urological examination have been minimized.

The authors found the incidence of organic disease to be much higher than that reported by most contributors, possibly because only refractory enuretics, or those with pyuria, have been referred to them by a number of pediatric clinics, with no way of ascertaining the total number of enuretics seen by those clinics, nor the percentage of their refractory cases seen.

The authors limited the discussion to female enuretic children treated in their clinic during a 2-year period because each case appeared to follow a similar pattern. The commonest lesion found was a narrow urethra, with resultant edema of the bladder neck, low-grade chronic trigonitis, and in many, the bladder had become trabeculated in order to overcome the narrow urethral outlet. These findings are not peculiar to enuresis. Recently, a number of articles have been published drawing attention to similar findings in female children as the cause for chronic recurring infections. The authors believe that a definite relationship exists between the problem of the refractory enuretic child and the child with recurrent urinary tract infections. The treatment is similar, i. e., the eradication of infection and the dilatation of the urethra as many times as is indicated along with bladder dilations when indicated. The use of bantnine or other antispasmodic drugs, along with local treatment of the urethra and bladder, will undoubtedly result in the highest percentage of cures of these combined problems.

During the past 2 years, 19 female children, ranging in ages from 3-1/2 to 10 years, have been referred with the primary problem of enuresis. Of this group, 17 had nocturnal enuresis only, and 2 had both nocturnal and diurnal enuresis. Eighteen had been enuretic since birth and

one had become enuretic following measles 6 months prior to examination. Seven had no complaints other than enuresis, 9 had recurrent cystitis, 2 had recurrent cystitis and pyelonephritis, and one was seen in acute urinary retention.

Excretory urograms and panendoscopic examinations were performed on each of these children as soon after the first visit as was compatible with the state of any infection present. The results of the excretory urograms showed evidence of chronic pyelonephritic damage to one kidney in 2 of the children. Bilateral renal damage was demonstrated in none. Panendoscopic examination revealed the pathological process in one child to be a spastic bladder neck secondary to a spina bifida with damage to the parasympathetic innervation of the bladder. In one child, obstruction was found to be due to scar tissue resulting from the removal of a urethral diverticulum one year prior to her first visit to the clinic.

In 15 of the remaining cases, urethral strictures required dilation with sounds before a cystoscope could be introduced. Edema and evidence of chronic inflammatory changes were felt to be important in 11 cases. In 9 cases, trabeculations were found in the bladder wall. A reduced bladder capacity was found in 4 of the cases with capacities of less than 100 cc.

In all of the 19 cases referred to the authors, some pathologic entity was present which could account for the enuresis, and indicated the possibility that the incidence of local organic disease as an etiologic factor may be much higher than previously reported.

Treatment consisted, first, of eradication, if possible, of any infection present, using appropriate antibiotics or chemotherapeutic agents. Then followed a series of urethral dilations at intervals of 1 to 3 weeks, depending largely on the child's response to therapy. These urethral dilations were carried out in all except one case without anesthesia. The one exception was the youngest child in the group, 3-1/2 years old. The children were extremely cooperative, most of them were eager to report on their progress and were only moderately reluctant to have the painful dilation performed.

Bladder dilations to capacity were performed on the 4 children with small capacities under general anesthetics on three occasions each. Of the 19 children treated, 15 were completely relieved of their enuresis following urethral dilations ranging in number from two to eighteen. Three children had marked improvement in their enuresis, converting from nightly to weekly or bimonthly enuresis, and one was cured of her diurnal enuresis, but continued to have nocturnal enuresis.

Those children with recurrent urinary infections were controlled, and with the exception of the 2 with gross anatomic lesions, their infections were completely cured. The 2 who were not cured were kept under control with continued antibiotics or chemotherapeutics, and periodic urethral dilations. (J. Urol., Dec., 1954; Capt. A. C. Abernethy, MC USN, and LT E. M. Tomlin, MC USN, U. S. Naval Hospital, Bethesda, Md.)

Methanol Poisoning

The investigation described as "An Experimental Study of the Toxic Amblyopias with Particular Reference to Methyl Alcohol Poisoning" was confined during the time of the study to methyl alcohol poisoning alone, and during this time a number of the objectives set, were attained. The object, then, of this project was first of all to find a suitable non-human experimental test object on which methyl alcohol poisoning could be validly investigated with several ultimate objectives in mind. Of these, one was to find the proximal toxic agent in methyl alcohol poisoning. A second was to investigate carefully the systemic as well as the ophthalmic aspects of methyl alcohol poisoning, particularly in the role of acidosis as the cause of death and blindness, and in regard to extraocular damage caused in methanol poisoning. Finally, it was desired to evaluate presently used therapeutic methods on the basis of the new rationale gained by experimentation, and if possible to institute additional, rational, therapeutic procedures.

In attempting to find the proximal toxic agent, experiments were done using methyl alcohol and its known degradation products on the metabolism of the surviving beef retina. This short cut proved to be reasonably fruitful. A second approach was to follow the metabolic fate of administered methyl alcohol in the experimental animal. Because of limited quantity of C^{14} labeled methanol available, the white rat was chosen by necessity. That this later proved to be not an ideal test object, did not invalidate a certain number of the results obtained, and could not have been avoided because of quantitative considerations. A third approach, the use of the primate test object, proved highly fruitful and resulted in establishment of a valid experimental test object for methanol poisoning. A fourth approach using antabuse as an adjuvant drug, and ethanol as a presumably antidotal drug, gave results of varying significance but bearing without question on the problem of eventual therapy. Altogether, a large percentage of methods employed in the approach to the problem gave fruitful results, and at the present time under another contract, are leading even further toward the ultimate goal.

In summary, it may be said that experiments done on the surviving beef retina indicated unequivocally that formaldehyde was the proximal toxic agent in methanol poisoning. The increase in toxicity to mice after administration of antabuse (an aldehyde accumulating agent) added strength to this conclusion. Increased toxicity in mice following administration of ethanol, led to caution in the proposed use of this agent as a methanol acidote. Investigation of the rhesus monkey as a possible test object for methanol poisoning was highly fruitful, and with this test object, the authors were able to reproduce a picture of human methanol poisoning in every respect. The latent period between inebriation and severe toxic symptoms,

the eye effects both pupillary and retinal, the acidosis, and the comatose death--all appear in the monkey given methanol in doses of 3g/kg or greater. Experiments in which acidosis was combatted with base, showed that more monkeys survived this potentially lethal situation but that many went on to show eye symptoms and to die of central nervous system depression and peripheral vascular collapse in spite of total absence of acidosis. Thus, acidosis must be combatted, but it by no means represents the sole danger in methyl alcohol poisoning. The ophthalmoscopic appearance of the retina and its time course is distinctive in these monkeys, is reproducible at will, and corresponds closely to eye symptoms in those few human cases which have been reported accurately. The cog-wheel pupil phenomenon has been described for these monkeys and had not hitherto been reported in methyl alcohol poisoning. Thus, it is seen that many of the objectives have been attained.

The authors believe that the identification of formaldehyde as the proximal toxic agent in methyl alcohol poisoning sets at rest a fifty-year controversy, and directs research along a more sure pathway for achievement of rational, therapeutic agents. They believe that use of the dual test objects, the surviving beef retina, and the whole rhesus monkey, has allowed, and will allow, increasingly rapid progress on a valid experimental basis. This eliminates confusion which existed in this field as a result of using rodents and carnivores for laboratory experimentation in reference to human methyl alcohol poisoning. The work begun, using C¹⁴ labeled methanol, must be repeated with the primate test object, and promises great success when employed in this manner. Similarly, therapeutic agents under consideration can now be tested in an adequate fashion. (NR 120-017, ONR)

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Lichen Planus

Lichen planus is one of the skin diseases which presents lesions in the mouth, and while as a skin disease, it is relatively uncommon, constituting approximately 1% of skin cases seen in hospital out-patient departments, recent experience indicates that the oral lesions are more common than is generally believed. In most cases in which oral lesions have been seen, these are so characteristic that diagnosis is straightforward, but some patients have presented lesions in the mouth with associated ulceration and in such cases there can be difficulty in diagnosis. Lesions in the mouth in lichen planus can also superficially resemble areas of leukoplakia, and although leukoplakia is recognized as a precancerous condition, no definite relationship has been established between lichen planus and carcinoma so that differentiation is clearly of importance.

The difficulties of diagnosis are increased because the oral lesions of lichen planus can occur without the skin lesions, and if the latter do occur, they may precede or follow, or appear at the same time as those in the mouth.

The basic lesion as seen on the skin is a small, flat, angular papule which is smooth, shiny, and violaceous in color, while on the mucous membranes it presents as a white, pinhead papule. The clinical variants of the papule which result are described as obtuse (dome-shaped), verrucous (a warty outgrowth), bullous (vesicular), erythematous (a soft lesion which is crimson in color), and atrophic (white spot), and all of these variants appear to have the same basic pathology as the simple papule. Some variants are more rare than others, but each may occur independently or in association with the simple flat angular papule which is the common skin lesion. The arrangement of papules may be discrete and haphazard, or in a linear or circular pattern.

Skin lesions may be found on any part of the body but are most common on the flexural aspects of the forearms and wrists, and the inner surfaces of the knees and thighs, together with the skin over the lumbar spine. Rarely, the nailbeds may be affected, and then the papules are visible through the transparent nail, while softening of the nail with grooving and ridging of the surface may result from enlargement of the papule.

In the linear arrangement of papules, the distribution of the skin lesions is considered by some to be associated with the course of a nerve, while with some patients a linear grouping of papules is said to be provoked by making a scratch mark along the skin. In the annular distribution, the papules are seen in a circular group, having apparently normal tissue within the circle.

Patients usually complain of the skin lesions being "itchy". and in many cases the itching is said to be intense.

The essential features of the form of the disease, as it is found in the mouth and on the skin, are the same and vary only in the site and structure of the lesions. Moisture and trauma modify the appearance of lesions in the mouth, and in cases with associated ulceration, secondary infection may further distort the clinical picture. The result is that lesions seen in the mouth are less easily recognized than those on the skin and are, therefore, more difficult to diagnose.

The initial lesion in the mouth is a white papule, the size of a pinhead, conical or flattened in shape, and the surrounding mucous membrane may be normal or show varying degrees of inflammation. Ulcers having a raised yellowish base are said to occur and to be extremely painful, while cases have recently been seen of lichen planus of the mouth with associated chronic ulceration and are considered to be more frequent than hitherto reported. Where the bullous form occurs, vesicles may be seen on occasion in the early stages, but these rapidly break down in the mouth, becoming ulcerated and sore.

By coalescence of numbers of the pinhead white papules, plaque-like lesions may be formed, but beyond these plaques, individual white papules are usually found, and these greatly assist in the diagnosis of the lesion. The most characteristic form of lichen planus seen in the mouth is that in which the papules form a white lacelike network on the mucosa with thickened nodules at the intersections of the striations composing the network, while at the periphery of these nodules, white striae may be seen radiating in stellate fashion. Groups of papules may also aggregate to present a white striated appearance, or by a circular grouping, present the so-called annular form.

The white papules, and especially the network formation, are commonly found on the buccal mucosa, and particularly on the mucosa related to the plane of occlusion. On the tongue some early lesions are said to reveal, on close inspection, a fine network in which the meshes are occupied by the filiform papillae.

As the exact etiology of the disease is unknown, treatment is largely empirical. General treatment, which is almost universally accepted, consists of measures to increase the patient's general health. These include attention to hygiene, a plain diet, and where possible, freedom from anxiety. Eradication of focal infection, dental or otherwise, should form part of the treatment.

Drugs, bacterial antigens, and radiotherapy have all been used empirically in the treatment of the disease. Many cases improve with no treatment, and some recur even after apparently successful treatment. In view of the influence of anxiety, which is noted in many case reports, the effects of suggestion in the various forms of treatment cannot be discounted. It is not possible to define any standard form of treatment, which must await a better understanding of the etiology of the disease. (Oral Surg., Dec., 1954; A. I. Darling, M.D.S., and H. S. M. Crabb, M.D.S., Bristol, England)

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American College of Chest Physicians

The American College of Chest Physicians will present the 8th Annual Postgraduate Course on Diseases of the Chest at the Bellevue-Stratford Hotel, Philadelphia, Pa., 7-11 March 1955.

Medical officers interested in attending the above course should forward official requests to the Chief of the Bureau of Medicine and Surgery. Authorization orders only can be provided. However, the \$75.00 registration fee will be reimbursed to those approved for attendance. Detailed information on the content of the course may be obtained from the American College of Chest Physicians, 112 East Chestnut Street, Chicago, Ill. (ProfDiv, BuMed)

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"Just One Letter"

With the approval of the Surgeon General and the writer, the following personal letter is quoted. Perhaps there are others whose reactions are the same.

" I am taking the liberty of writing this letter to say 'how right you are!'

On a number of occasions--both orally and in writing--you have pointed out the advantages: personal, professional, and financial, that are a part of the Navy way of life.

In the past, I took all of these for granted, but having recently resigned to enter private practice, I can testify forcefully to the correctness of your views and your position. You are absolutely right!

On the personal side is the rewarding feeling that comes with being a member of the Navy team.

On the professional side comes the satisfaction that accrues to the physician who can practice good Medicine unencumbered by the economics of private practice. And the occasional transfer to a new job is a stimulating challenge which tends to keep one out of the proverbial rut.

And, finally, on the financial side the Navy Medical Officer does O. K. Having resigned after twelve years of active duty, I estimate this has cost me in the neighborhood of a \$100,000 annuity retirement policy. Parenthetically, this financial loss I can never make up.

Of course, as in any other walk of life, there are disadvantages, too, to Service life; but I can honestly say the rewards far outweigh them. I sincerely regret leaving the Navy, and wish I were back on the "Team".

I am proud of my twelve years of association with the Navy Medical Department. In my book, you are the finest. I hope you continue to spread the 'word', because you are so right!"

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Training Course in Special Weapons, Isotopes,
and Military Medicine for Reserve
Medical and Dental Officers

The fourth annual course, "Special Weapons, Isotopes and Military Medicine," will be sponsored by the Inspector, Naval Medical Activities, Pacific Coast, and presented by the Commandant, Twelfth Naval District, during the period 28 February - 4 March 1955, at the U.S. Naval Station, Treasure Island, San Francisco, Calif.

This course has been arranged to provide Reserve Medical Department officers of the Armed Forces the latest information to be employed in the many and varied aspects of special weapons, isotopes, and military medicine and dentistry. Each subject will be presented by a speaker of prominence in the specialty concerned.

Eligible Reserve officers will receive retirement point credits, on the basis of one(1) point for each day of attendance. Reserve Medical Department officers desiring point credits for attendance must obtain authority and appropriate orders to assure accreditation. Officers who hold appropriate duty orders, and a limited number of officers in the Active Status Pool, may be issued orders to active duty for training with pay. A tentative program and applications for active duty training and/or authorized orders will be mailed prior to 1 January 1955.

Naval Reserve Medical Department officers who have performed fourteen (14) days active duty for training, with or without pay; retired officers; or officers on the Inactive Status List are invited to attend this course without orders and will not receive retirement point accreditation.

Although this course is intended primarily for Naval Reserve Medical Department officers of the Pacific Coast, active duty personnel are invited to attend, as well as other components of the Armed Forces, the Public Health Service, and Civil Defense personnel. (DMO, 12th N.D.)

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From the Note Book

1. For the past four years the National Bureau of Standards has been conducting an intensive program of research and instrument development in high-energy x-rays ranging from 2 million to 180 million electron volts. This work, under the direction of Dr. H. W. Koch, Chief of the Bureau's Betatron Section, is providing basic data essential to the safe and effective utilization of the radiations from high-energy electron accelerators in medical treatment, industrial radiography, and nuclear physics research.

In the course of the program, radiation from the Bureau's 50-million volt betatron and 180-million-volt synchrotron has been used to probe the

atomic nucleus, and, thus, valuable information about its internal structure is being obtained. Development of a crystal spectrometer for selecting radiation of a particular energy has opened the door to many research problems formerly considered impossible. Studies have been made of the distribution and absorption of high-energy x-rays in a material simulating the body of a patient; direct visual techniques have been worked out for detecting faults and flaws in metallic structures; recommended practices have been developed for the protection of operating personnel; and standardization and calibration procedures for high-energy x-rays are being set up. (NBS, Summary Technical Report 1897)

2. Accidental exposure to high-energy x-rays, or to the electrical potentials of the high-energy generators, can be extremely serious to operating personnel. However, because of the newness of the field, recommendations for safe practices have only recently been completely formulated. This formulation was accomplished by the National Committee on Radiation Protection under Bureau sponsorship and has been published as an NBS handbook. Some of the recommendations in the handbook suggest suitable measurement and personnel protection instruments; others deal with the use of energy units (ergs/cm^2 and ergs/gram) in the measurement of high-energy radiations. A large part of the experimental data and calculations in the handbook was provided by the NBS betatron laboratory. (NBS, Summary Technical Report 1897)

3. A method of measuring variety of clinical experience which small hospitals offer nursing students is given in a new Public Health Service monograph issued with the December issue of Public Health Reports.

The publication, "Appraising the Clinical Resources in Small Hospitals," gives a simple method of gathering facts on diagnostic conditions in hospitals of different sizes. The article suggests that the method may be particularly useful to nursing schools in deciding whether to include small community hospital experience in students' programs. It also is of interest to those concerned with planning hospital facilities and coordinating hospital programs. (PHS, H. E. W.)

4. The Surgeon General of the Public Health Service has announced approval of Federal grants for 972 medical research projects, totaling \$10,275,533, for basic and applied research in many of the major diseases afflicting Americans today. The grants were approved during recent meetings of the seven National Advisory Councils and were scheduled for payment as of December 1, 1954.

Two hundred and eighty-nine of the awards, totaling \$3,079,840, were for new research projects, and 683, totaling \$7,195,693, were for continuation of existing projects.

The awards were made to scientists in approximately 215 research institutions in the United States and are administered by the National Institutes of Health, research bureau of the Public Health Service. (PHS, H. E. W.)

5. The lowest death rate in the history of the country and the largest annual number of births were forecast for 1954 by the Surgeon General of the Public Health Service. The death rate for the year is expected to close at 9.2 deaths per 1000 population, a substantial drop from the rates of 9.6 or 9.7 which have prevailed over the past 5 years. The absence of any reported outbreak of influenza in 1954, with consequent low death rates for the chronic cardiovascular diseases, was cited as a principal reason for the decline. Infant and maternal deaths were also expected to hit new lows.

Births will top the 4-million mark for the first time, according to preliminary estimates. The expected birth rate of 25.2 per 1000 population is the second highest in 28 years, and only 5.3% below the peak year of 1947. A continuing rise in the births of third, fourth, and fifth children is probably responsible for the birth increases in 1953 and 1954. No increase in births of first children was expected because of falling marriage rates since 1951. (PHS, H. E. W.)

6. The California Department of Public Health reports an outbreak of poisoning following the ingestion of smoked bonito. Nine of 16 persons who ate the fish became ill with flushed face, diarrhea, headache, pain in the neck, chills, cramps, and an unusual sensation in the upper lip from 15 minutes to 1-1/2 hours later. The fish were caught off the coast and were taken to a smoking and curing place. A similar outbreak was reported for the week ended December 4. As a result of these outbreaks, an attempt is being made to determine the source of illness following the consumption of this type of fish.

The Los Angeles City Health Department reports 2 outbreaks of gastro-enteritis among patrons of 2 restaurants. No food was available at either place for bacteriological examination, but pot roast and hollandaise sauce were suspected of being the vehicles of infection. At one restaurant, the meat for the pot roast was received 2 days prior to its use and was kept in a walk-in icebox. Ten pieces of meat were roasted. As the meat was needed, it was sliced and placed on a steam table. However, the meat for a party of 16 was served directly on the plates. Of these, 10 became ill from 10 to 15 hours later. The sauce at another restaurant was prepared at 5:30 p.m., and was kept on a shelf near the steam table. Of a group of 11 persons who ate at 9:30 p.m., 6 became ill about 4 hours later.

Dr. W. R. Giedt, Washington State Department of Health, reports an outbreak of gastro-enteritis among persons who ate ham and turkey dinners.

The ham was boned at the butcher shop where it was purchased. Both the ham and the turkey were cooked in a private home. The ham was then taken to the butcher shop for slicing. Both meats were left at room temperature until the next day, and were served in sandwiches in the afternoon and as sliced meat at 6:00 p.m. Eight persons became ill with severe vomiting, diarrhea, and prostration from 1 to 1-1/2 hours later. Because of the pattern of food intake and illness, it is believed that ham was the probable vehicle of infection, and that the turkey was contaminated from it, either in handling or en route to the laboratory. Gram-positive micrococcus having characteristics of toxigenic staphylococcus was found in specimens of both the ham and the turkey. (PHS, H. E. W.)

7. The results of 365 corneal grafts, performed at the Manhattan Eye, Ear and Throat Hospital, are analyzed by the author for further light on the results of keratoplasty. (A. M. A., Arch. Ophth., Dec., 1954; R. T. Paton, M. D.)

8. The diagnosis of rheumatic heart disease requires recognition of the etiology of the process and evaluation of myocardial, endocardial, and pericardial lesions, as well as of possible lingering activity of the rheumatic process. (Am. J. Med., Dec., 1954; A. A. Luisada, M. D.)

9. Clinical and autopsy records of 100 cases of aortic stenosis, without significant involvement of other valves, were reviewed. It was concluded that aortic stenosis, even when severe, may be accompanied by few, if any, of the classic signs. Assessment of the degree of aortic stenosis by the usual clinical criteria is difficult. (Arch. Int. Med., Dec., 1954; J. Bergeron, M. D., W. H. Abelmann, M. D., H. Vazquez-Milan, M. D., and L. B. Ellis, M. D.)

10. Practical factors in gastric resection are discussed in Am. J. Surg., Dec., 1954; M. B. Noyes, M. D., and C. H. Lithgow, M. D.)

11. A report describing some of the more common errors made in recognizing and treating diseases of the heart appears in Circulation, Dec., 1954; R. B. Logue, M. D., and R. W. Hurst, M. D.

12. The pathology of 7 cases of Wegener's granulomatosis presenting severe destructive lesions of the respiratory tract, arteritis, and nephritis, is described. (Arch. Path., Dec., 1954; G. C. Godman, M. D., and J. Churg, M. D.)

13. A review of the history and modern literature of splenosis (autotransplantation of splenic tissue) appears in Arch. Surg., Dec., 1954; Capt. E. A. Cohen, MC USA)

Board Certifications

American Board of Ophthalmology

LT T. N. Kirkland (MC) USN
CAPT E. C. Swanson (MC) USN

American Board of Otolaryngology

LCDR J. B. Dominey (MC) USN

American Board of Pathology

LT S. D. Kustermann (MC) USN

American Board of Pediatrics

LT R. F. Neal (MC) USNR

American Board of Psychiatry and Neurology

LT H. Trosman (MC) USNR

American Board of Surgery

LT J. A. Barss (MC) USNR
LT L. W. Nowierski Jr., (MC) USN
LT N. B. Thomson Jr., (MC) USNR

Associate American College of Medicine

LT R. Foulk (MC) USN
LTJG W. R. Hansen (MC) USNR
CAPT E. C. Kenney (MC) USN
LT A. M. Margileth (MC) USN
LCDR F. M. Morgan (MC) USN
LT R. W. Sharp (MC) USN

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Correction

In Vol. 24, No. 12, page 17, the credit line for Fluorides in Water Supplies should read: J. H. Shaw, School of Dental Medicine, Harvard University.

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BUMED NOTICE 6310

7 December 1954

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations Having Medical Personnel Regularly Assigned
Subj: BUMEDINST 6310.3 CH 4 (Instructions and definitions relating to certain diagnostic titles, Individual Statistical Report of Patient, and Morbidity Report), and notice of reporting requirement for submission of a NAVMED-F card for each patient "Continued as of 31 December 1954"

Encl: (1) Subject change

This notice provides replacement pages 7, 14, 26a, and 27 for enclosure (1) of BUMEDINST 6310.3 and (2) to remind addressees of the requirement of submitting a NAVMED-F card on each patient "Continued as of 31 December 1954."

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BUMED INSTRUCTION 7302.3

14 December 1954

From: Chief, Bureau of Medicine and Surgery
To: All Activities Under the Management Control of BUMED
Subj: Change orders to NOy contracts; citation of funds after close of the fiscal year
Ref: (a) NavCompt Manual Volume 2, paragraph 022083
(b) NavCompt Manual Volume 3, paragraphs 032002 and 032005

This notice informs addressees of their responsibility in connection with the citation of funds on change orders to NOy contracts.

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BUMED NOTICE 6320

15 December 1954

From: Chief, Bureau of Medicine and Surgery
To: All Naval Hospitals Except Bethesda
Subj: Completion of Part IV of the Hospital Staffing Report (NAVMED-1353) for the month of January, 1955

This notice brings to the attention of addressees the provisions set forth in Part IV, paragraph 1, Section II of BUMEDINST 6320.15 which requires completion of Part IV of the Hospital Staffing Report (NAVMED-1353) for the month of January.

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BUMED NOTICE 6320

16 December 1954

From: Chief, Bureau of Medicine and Surgery
To: All Naval Dispensaries
All Continental Stations Having Infirmaries and Dispensaries
Subj: Completion of Part II of the Staffing Report (NAVMED-1357)
for the month of January 1955

This notice brings to the attention of addressees the provisions set forth in subparagraph 5b of BUMEDINST 6320.16, which requires completion of Part II of the Staffing Report (NAVMED-1357) for the month of January.

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BUMED INSTRUCTION 6320.5D

21 December 1954

From: Chief, Bureau of Medicine and Surgery
To: All Naval Hospitals
Subj: Naval hospitals designated to receive patients who require special treatment
Ref: (a) Article 11-30(2), Manual of the Medical Department

This instruction designates certain naval hospitals to receive patients who require definitive treatment and specialized medical care. The designations are in accordance with missions to be incorporated in Tentative Basic Naval Establishment Plan, Fiscal Year 1956.

BuMed Instruction 6320.5C is cancelled.

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The printing of this publication has been approved by the Director of the Bureau of the Budget, June 23, 1952.

BUMED INSTRUCTION 6250.4

22 December 1954

From: Chief, Bureau of Medicine and Surgery
Chief, Bureau of Yards and Docks

To: Distribution List

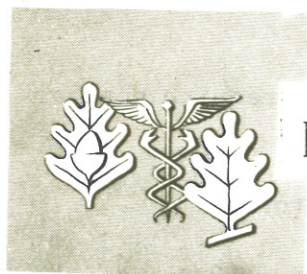
Subj: Pest control; vector (health) and economic

Ref: (a) SECNAVINST 6250.2 of 31 March 1953
(b) BUDOCKSINST 5450.8 of 12 Nov 1953 (SNDL F2, N1, N2)
(c) BUMEDINST 6250.3 of 23 April 1953
(d) SECNAVINST 6250.1 of 25 March 1953 (all shore stations)
(e) BUMEDINST 4210.1B of 8 June 1954

Encl: (1) SECNAVINST 5420.17 of 13 Nov 1953 (with encl.)
(2) Pest Control Responsibilities of Medical and Public Works
Officers
(3) Availability of Pest Control Personnel

This instruction establishes policies for the achievement of maximum efficiency and safety in the control of pests and implements the provisions of enclosures.

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PREVENTIVE MEDICINE SECTION

Medical Department Participation in the Motor Vehicle Accident Reduction Program

The special training and experience of the medical officer equip him to render an important service in reducing the incidence of automobile accidents.

The statistics for the Navy and Marine Corps for 1952 showed that the number of deaths totaled 675, with 8000 admissions to the sick list.

An average of 46 days was required for treatment in each case. Over 80% of the accidents with injuries and deaths occurred on leave or liberty, and in 4 out of 5 cases in a privately owned passenger vehicle. Accidents happened mostly on holidays and weekends, and the persons involved usually were in the age group under 30. About twice as many deaths were caused by accidents as were caused by all diseases during the year.

The figures at a typical Naval Air Station having a military population of approximately 15,000 were as follows:

1. Total number of personnel involved in accidents	1100
2. Total number of auto accidents	407
3. Total number of accidents resulting in casualties	160
4. Total number of personnel killed or injured	297
5. Total number of deaths	15

Action Taken. In February 1952, the Chief of Naval Air Technical Training at the Naval Air Station, Memphis, Tennessee, established a permanent Board of officers, now generally known as a "Safe Driving Council," and charged them with the responsibility of studying the problem of motor vehicle accident prevention in privately owned vehicles and making recommendations to the commanding officer to reduce them. In addition, the Safe Driving Council was authorized to proceed with a program of education, using all media designed to accomplish the objectives of the program, audio and visual. In general, the problem was attacked on four fronts, mainly: education, enforcement, traffic engineering and administrative action. Following is a short discussion of approaches used in each field:

1. Education.

Education is a most important deterrent to accidents generally. Effort is made to develop an attitude of "safety consciousness," as opposed to an attitude of recklessness and willingness to take chances. There is adequate evidence to support the contention that attitudes can be changed, and education is, perhaps, the most effective instrument. Following are some of the forms of education which were used at the Naval Air Station, Memphis, in promoting the safety program:

Indoctrination of incoming drafts of trainees.

Automobile movie "shorts" on automobile safety.

Use of pledge cards and club cards to encourage identification with the program.

Support of the automobile safety program by the station newspaper, "Bluejacket."

2. Enforcement.

Enforcement is the most obvious approach to automobile safety and, undoubtedly, is the most effective means of producing early results. However, the permanency of this method depends on continued application, and it is doubtful that driver safety consciousness is retained in any appreciable degree after the threat of punishment is removed. A patrol on the highways

approaching the station during liberty hours was inaugurated, in coordination with the civilian highway patrol program, in a joint effort to maintain observance of traffic laws. There is no doubt that this measure was effective. A close liaison was maintained with the state and county traffic authorities in a concerted effort to assist the local civilian agencies in solving enforcement problems. It was requested that reports of all traffic violations coming to the knowledge of the enforcement agencies in the community be forwarded to the local station authorities. In this way, proper disciplinary action could be taken locally when required, and note of additional accidents added to the compilation of statistics.

3. Engineering.

Under this approach to the problem, one of the first items was the maintenance of "pin" maps of the location of accidents in order to discover specific danger areas. Action of a specific nature was then possible.

A number of recommendations concerning traffic engineering, such as stop signs, traffic lights, traffic lanes, lining of pavement, routing of traffic, et cetera, were made by the Safe Driving Council. In general, the possibilities of making extensive improvements through traffic engineering are doubtful due to the costs involved. However, in long range planning, traffic engineering must not be neglected.

4. Administrative Action.

Military organizations in general have a special control over the individuals under their command which permits reduction of accidents by the simple expedient of restriction of automobile travel. This may be obtained by prohibition of automobiles on the station, by restriction of liberty, or by substitution of other means of transportation considered safer than the automobile. All are examples of approach to accident control through administrative action.

Perhaps the most important step in organizing a safety program is the establishment of the Safe Driving Council. The Council should be composed of individuals aboard the station having an interest in automobile safety. Naturally, the medical officer represents the commanding officer's interest in conservation of his personnel and is one of the key members. It is advisable also to have as members officers representing the departments of safety engineering, public information, security, administrative officer of the command, and transportation, as well as any specially trained and qualified individuals who may be available, such as psychologists or statisticians. The enlisted body should also be represented on the Council as enlisted men represent the principal group of individuals on whom control measures are being focused. The Council functions as a group discussion unit, and, to some extent, as an executive body within limits prescribed by the commanding officer.

5. Role of Statistics.

One of the important steps in determining the fields of accident control exists in assembling statistics on information which the safety program

needs for efficient operation. Statistics provide facts concerning the number of accidents at various locations, the cost of accidents, their causes, and the number of resulting casualties. These facts play an important part in the formulation of sound accident prevention policies. This information helps to state the automobile safety problem in specific terms and frequently suggests remedial action. Statistics also play a major role in the evaluation of the effectiveness of the automobile safety program, particularly applicable at the present time when cost consciousness receives so much emphasis. Of course the most important costs of all, the cost in lives and the cost of disabling injuries, are difficult to measure. Where statistical analysis is not possible, to a full degree, controlling action may be taken on the basis of statistics, available at command, which have a similar pattern of personnel and geographic location.

At the Naval Air Station, Memphis, an accident reduction program based on principles outlined in preceding paragraphs reduced the number of accidents by 72, casualties by 52, and material costs by \$47,000, in comparison with 1951 figures. In 1953, through continuation of the safety program, a similar reduction was effected below 1952 figures.

6. Particular field of action available to a medical officer attached to a Naval, Marine, or other similar military base.

It is said that safety is everyone's business. Surely the medical man and the medical department has as great a concern as any other department in the reduction of injuries and deaths due to automobile accidents. In the final analysis, it is in the field of education that the greatest permanent reduction in automobile accidents can be obtained. Here the medical officer may accept a very important role with his background and experiences in teaching first aid, hygiene, and other related medical subjects. There are certain other areas also where he has special qualifications that he can use to best advantage as a member of the local Safe Driving Council.

a. The study of presence of accident-prone factors in the local environment.

This should include, not only study of actual accident proneness of individuals, but consideration of the factors present in life aboard the command which predispose to automobile accidents, such as geographical location, lack of recreational facilities, abuse of liberty, drinking while driving, undertaking excessively long trips with attendant fatigue, or a general attitude of carelessness, or lack of sufficient knowledge of the danger involved in inexperienced operation of a motor vehicle.

b. Physical Standards.

Under this category is included a check on the adequacy of the physical standards for driving in a particular area as well as any physical or mental factors which are predisposing to involvement in accidents related to duty performed, and other related factors. A medical officer is best able to judge whether or not accidents are being increased by exhausting mental or physical factors in the working or recreational environment.

c. The problem of the drinking driver, the problem of dozing while driving, and that of mental or emotional instability, are all within the special interest of the medical officer. He is in the most favorable position to assemble data on such factors as the relation between blood alcohol level, as shown by Bogan's test or breathing test, and the incidence of accidents or the severity of injuries. Such information, as obtained, may be useful in the educational program.

d. The medical officer is the one person who has first hand knowledge of every auto accident casualty. He is also best qualified to study the type and degree of injuries which result, and to suggest possible ways in which their severity may be minimized.

e. The entire problem is so oriented around the medical department that it is difficult to see how personnel of any other department could be more concerned. A particular field in which the medical officer is exceptionally well qualified is that of influencing men through lectures and admonition toward safety-mindedness. In past years, medical officers have devoted long hours to instruction in first aid, in personal hygiene, and in the prevention of venereal disease--all time well spent. There is no other field of endeavor in which such savings of life, limb, and collateral costs can be effected as in the effort to reduce automobile accidents.

f. In summary, the medical department is a key unit in the promotion of an automobile accident reduction program. The medical officer is charged by regulation with the responsibility of representing the commanding officer in protecting the health of the command. There is no other department so interested as the medical department in the problem of motor vehicle accidents. While traffic accident prevention is a "command" problem, the medical officer should assume a principal responsibility. The medical officer should never regard his qualifications as so specialized that he can shrug the responsibility of preventing death or injury from any cause. (Address by Captain G. B. Ribble (MC) USN at the Annual Meeting of the Association of Military Surgeons, November 29 - December 1, 1954)

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Film - Drive Right

Film MN-7498b, "Industrial Health and Safety - Drive Right" is recommended as an outstanding film to be shown to naval personnel as part of the program designed to combat the steadily rising incidence of motor vehicle accidents.

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General Sanitation

Improper Use of Coffee Urns for Dispensing Bulk Milk

A special epidemiological report of a recent outbreak of gastroenteritis among personnel on a naval station attributed the outbreak to the continued use of a coffee urn for dispensing milk on general mess, despite the fact that a warning had been issued concerning the hazard involved.

A thorough inspection of the facilities of the general mess, showed that the faucets of coffee urns do not admit of proper cleansing. The faucet, tubes, and interior of the urns, it was revealed, contained heavy deposits of milk curd and milk stone.

Bacteriology counts were taken from the urns used to dispense milk, and, after incubation for 18 hours at 37 degrees Centigrade, the plates showed unidentified colonies too numerous to count.

It has been recommended that, if bulk milk must be served on the general mess at the station, suitable refrigerated dispensers be used. (Note: A BuMed instruction will be released in the near future, setting forth a sanitation program for milk and milk products, including sanitary requirements for bulk milk dispensers.)

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Commercially Prepared Sandwiches

Recently reported outbreaks of gastroenteritis emphasize the hazards of commercially prepared sandwiches. Following investigation of one outbreak aboard ship, traced to commercially prepared sandwiches sold at the soda fountain, the comments excerpted below were made by Preventive Medicine Unit No. Two:

"Sandwiches, which had been supplied to the ship previous to the onset of cases by a local civilian establishment, were cultured, and both alpha and beta streptococcus were found. Sale of sandwiches made by this concern was stopped at once to all naval activities.

"Members of this Unit have been concerned about the proper handling of packaged sandwiches ever since the recent bacteriological examination of a certain packaged sandwich, prepared and offered for sale without refrigeration, revealed large numbers of gram-positive cocci. This Unit recommends that prepared sandwiches be stored at a temperature below 50°F. at all times prior to sale."

The general principles of food service are applicable to sandwiches the same as to any other food, and more than 4 hours cumulative exposure to temperatures above 50°F. during preparation, delivery, and serving,

renders them unacceptable for human consumption. Inspection of source, a knowledge of delivery channels, and inspection at the dispensing unit are as necessary as for other foods. Because packing sandwiches on trays or in boxes prior to placing them in refrigeration will probably result in slow cooling due to the excellent insulating properties of bread, particular caution should be observed that materials are chilled prior to use, and that individual sandwiches are returned to refrigeration as soon as they are made.

The safest policy is to ensure that not more than 4 hours (preferably not more than 2 hours) elapse between the time of preparation and the time of consumption.

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Enteric Carriers - Survey of Four Naval Vessels

Preventive Medicine Unit No. Two reported the results of a survey of enteric carriers which was conducted on four naval vessels in the Norfolk Area.

Rectal swabs were obtained from 331 persons. *Paracolo bacterium* were noted in 61 individuals: *P. coliforme* in 32; *P. intermedium* in 16; and *P. aerogenoides* in 13 persons.

Shigella flexneri was recovered from a hospital corpsman, third class. During a recent Mediterranean cruise, this man had had two episodes of diarrhea for which only symptomatic treatment had been given. During the survey a course of Terramycin was administered to him, after which the organism could no longer be recovered.

Attention was called also to the frequency with which water samples were being found to be positive for coliform organisms. Recheck showed the water to be free of such organisms in many instances. Such errors, for the most part, are due to improper collection of the sample. In this regard, the attention of personnel collecting water samples is directed to Articles 2, 14, and 19 of the Preventive Medicine Laboratory Methods Manual, dated July 1953.

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Testing for Chlorine Residuals in Shipboard Water Supplies

Recently, personnel of Fleet Epidemic Disease Control Unit No. Two investigated the potable water supply on all U. S. ships in a foreign port. When not distilling water at sea, the ships were obtaining their water from foreign shore sources. The chlorine residuals in the water of most ships

were negative or ineffectively low. Many ships did not have chlorine test kits and personnel responsible were merely guessing at the residuals. In some instances they did not know how to chlorinate properly.

To ensure a safe water supply, ships loading water from shore sources, water barges, or other ships, should perform tests for chlorine on each supply of water received aboard. Personnel responsible should perform tests for chlorine in accordance with the methods prescribed in the Preventive Medicine Laboratory Methods Manual. Procedures for the chlorination of water supplies are outlined in Chapter 6, Manual of Naval Hygiene and Sanitation.

Requests for the Preventive Medicine Laboratory Methods Manual, Naval Medical School, July 1953, should be submitted on form NAVEXOS-158 (3-50), Stock Form and Publication Requisition, to appropriate Publication and Printing Offices. Chlorine test kits have the following stock number and title: 6630-417-0000 Comparator, color, chlorine.

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Insect and Rodent Control

Insecticides, Pesticides, and Dispersal Devices

Administrative inspections of SERVPAC ships reveal that chlordane and other insecticidal agents are being indiscriminately used without authority and in disregard of current directives. The most prevalent errors noted in the use of insecticides are: (1) use of chlordane solution as a space spray; (2) application of insecticides at intervals inconsistent with requirements for adequate control; (3) use of highly toxic insecticides or those contained in a combustible solvent in confined or poorly ventilated spaces; and (4) stowage of insecticides in food preparation and messing spaces.

Basic precautions in the use of insecticides are set forth in paragraph 4 of BuMed Instruction 6250.3 and, regardless of the insecticide used or safety claim of manufacturer, such precautions must be continuously observed. Personnel using insecticides are urged to become familiar with that instruction in order to ascertain the appropriate insecticide for each specific pest problem. Insecticide technology has advanced so rapidly during recent years that it has exceeded to a considerable degree the accumulation of toxicological knowledge on the possible chronic effects of many new materials. The relative safety and widespread use of DDT, even by untrained personnel, has resulted in a lack of adequate respect for the hazards of certain other insecticides. The possibility of danger from insecticides, as with other chemicals, will largely depend as much on the method and condition of use as on the inherent toxicity of the insecticide. Usually the toxic properties

of the solvent or carrier, as well as those of the insecticide, must be considered.

SecNav Instruction 6250.2 prohibits the procurement of nonstandard proprietary pesticides and dispersal devices except as noted therein. Uncontrolled use of new pesticides having unknown toxicological effects may result in serious poisoning or may even prove fatal to operating personnel not familiar with the necessary precautions required in their use. A manufacturer's claims of safety and effectiveness, often the basis on which an item is procured, in many instances are found later to be invalid. Enclosure (1) to SecNav Instruction 6250.2 states the policy with respect to use of vaporizing devices on naval ships and stations and avers that these devices are generally ineffective and unsafe except under restricted conditions.

It has long been established that the most satisfactory method of insect control is to maintain a high standard of sanitation and environmental cleanliness. When insect infestations are discovered, immediate control measures must be instituted. The type of insecticide and the method of application pertinent to each control operation should be determined by reference to BuMed Instruction 6250.3 and the Manual of Naval Hygiene and Sanitation. If doubt exists as to the proper control measures to be instituted, the services of trained pest control officers should be requested from shore activities. (COMSERVPAC Information Bulletin, Force Medical Section, Cumulative Edition 1953)

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OFFICIAL BUSINESS

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DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY

PENALTY FOR PRIVATE USE TO AVOID
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